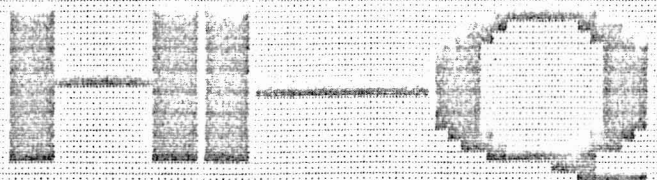


APRIL 1989

AMATEUR RADIO IN THUNDER BAY - ONTARIO

EDITED BY E.R.  
BAUMANN VE3SNW

WRONG ADDRESS?  
SUBSCRIPTION  
PROBLEMS?  
CALL  
(807) 622-1216



JOURNAL OF THE I.A.R.C.

NEXT MEETING IS THURSDAY  
APRIL 13, 1989

SEE SPECIAL BULLETIN  
THIS ISSUE

EVERYONE WELCOME

## UNDERWATER AMATEUR STATION!? .. Paul Buescher

N8HHG

Every radio enthusiast knows the challenges of putting an amateur radio station on the air, but to do so underwater while using scuba gear is a whole new ballgame!

In August of 1987, members of the Ohio Underwater Research Association (OURA), based in Twinsburg, Ohio, began planning such a station as the result of a joking remark by one of the members.

During a scuba diving venture last year, I took along my HF rig to operate in the evening. It was during one of these evening sessions that a fellow OURA member kindly suggested that I take my noisy radios and go for a nice long dive. Well, it took almost a year, but I finally made that dive.

On Monday, June 27, at 2015 UTC, I entered the clear cool water of the East Quarry at Kelly's Island (Ohio) State Park and descended to an anchored four foot by three foot plastic pup-tent (we call it a comm-chamber) and popped up inside to a breathable 18 cubic foot atmosphere.

For the next half hour, fellow OURA divers brought an assortment of electronic gear to me in Tupperware-type waterproof containers - one of which had an umbilical cable to the surface with the antenna and intercom attached to it. Eventually all the gear was assembled and even after dropping the Radio Shack intercom and Kenwood microphone into the water (both survived) submerged marine portable N8HHG was on the air.

2045 UTC, two meter contact was established with fellow OURA member Donna Burroughs, KB8YS in Macedonia, Ohio, followed by numerous contacts in the northeast Ohio area.

During the following days, the comm-chamber was moved to different sites within the vicinity of Kelly's Island. The brief stays inside chamber eventually led to HF contacts in 48 states and 11 countries.

Problems involved in the operation of the station ranged from tolerable to down-right aggravating. Foremost in consideration was the fact that we had to secure the comm-chamber to a convenient shipwreck, boulder, or other immovable object to offset over 900 pounds of lift that the fully inflated chamber presented. Next was the relatively cold (69 degree) water that had to be dealt with. Even after an hour of submersion with a wet suit, the chills and shivers set in. Then there was the difficulty of keeping fresh air in the chamber.

The "old" air had to be released to the outside while fresh air was injected inside from the scuba tanks -- all done quietly so as not to disturb the radio operations. Log keeping presented yet another problem. Keeping the log on underwater slates seemed quite simple at first but then came the pile ups. I found that working a different station every 30 seconds or so became overwhelming, so the log keeping was quickly transferred to Tom Wayne, WB8N, and Casey Nowakowski, N8FCQ, on the surface.

Bear in mind the fact that there I was, ten feet or so underwater, kneeling on a hard surface with water almost up to my neck, with my head inside this little "tent" talking with a mike in one hand and an intercom in the other, trying to write on slates and regulate the air between transmissions -- not exactly your everyday amateur radio operations. The whole project sounds like something we would never want to do again, right? Wrong!

The rewards and satisfaction that our 12 person crew shared between ourselves and the amateurs and SHL's worldwide, who talked to us or just heard us, was more than worth the "sacrifice" -- it was a labour of love. We are already planning our next unique scuba/radio adventure. We recently heard about a sunken aircraft beneath the surface of Lake Erie. I can see it now, a submerged aeronautical portable -- now that would raise a few eyebrows.

Reprint from the Monitoring Times February 1989

Submitted by Dave VE3AVS

## SPRING CLEANING... by Lou Beaubien

VE7CGE

After climbing a few towers this year, I noticed that several of them were starting to rust. My own heavy duty "DELHI 48" was showing some rust around the bolts. When I went "up top", there was a lot more rust that you could see from the ground. Galvanized towers require a special paint as ordinary paint doesn't stick very well.

The B.C. Hydro uses a product called GALVICON which can be thinned by about 20% Galvicon Thinners. This is available from Steelfab Canada Ltd. 12651 Mitchell Rd., Richmond, B.C. (no doubt someone can let us know about a local dealer or an alternate product...Ed)

It takes about two quarts of Galvicon to paint a 48 foot tower. You also need one quart of thinner. The cost is about \$70.

Galvicon is an organic zinc rich coating that contains 95% zinc in the dried film for protection of iron and steel against corrosion. It will provide "cathodic" protection and electrical continuity. The manufacturer recommends a thorough stirring and application to a clean, oil free surface using a medium stiffness brush. No undercoating is necessary as long as the loose rust is brushed off.

Since Galvicon costs over \$30. a quart, I rigged a large tomato juice can with a wire handle and brought up 1/2 a quart per trip. That lasts about an hour and that's long enough without refreshment.

I also took the opportunity to overhaul the Bean and rig a new yardarm for the 80/40 Inverted Vee. SOS pads are great for shining up the aluminum on the beam. I cleaned up and rethreaded the "U" bolts as required and coated them with Galvicon to keep the rust down. All the coax was checked and resealed with "Coax Seal" and retaped with electrical tape. The HAM IV rotator came down for overhaul by my friend Wally VE7CJT. He found that all the ball bearings had rusted, so these were replaced and the rotator was cleaned, lubricated and painted. The terminal board was a mess and we replaced the screws and redid the wiring. This time the terminal board was sealed with Coax Seal.

It always amazes me to see how much progress we have made in our installations after having worked on the "Antenna Committee" in our club for several years. We see how to do things better and how to use better materials and workmanship to keep our installations operating for longer periods of time.

If you are a newcomer to Amateur Radio and are considering a tower and beam, just remember that towers deteriorate with age and you should install the heaviest tower you can afford. Always keep in mind the safety of your pals who may be climbing your tower with you, and don't forget to use a good quality climbing belt.

73's Lou  
reprinted from the "BURNABY CONNECTION" with permission from the author  
submitted by John VE3PHL

Lakehead Amateur Radio Club History Project

## UPCOMING EVENTS FOR APRIL

### ANOTHER TOUR!

The club will be touring the *Ministry of Health Communications Centre* at Mini Queens Park (Ontario Government Building) on our meeting night of April 13/89. We will meet in the front lobby of the building at 7:00 P.M. sharp or even a few minutes earlier. The MOH also has a video that they will be showing us and then an extensive tour of the operations console, computer control and repeater link and status board. We hope to be done the tour at James Street government building at around 8:15 P.M. We will then be going over to the airport hanger to see the air ambulance helicopter "797". The medics and flight crew will be giving us a tour of the facilities and showing us the chopper inside and out. This should be a great tour so don't forget your cameras, and all are welcome. Again, it was requested that no young children be brought on the tour.

7:00 P.M. 435 James St. (Government Building Lobby)

8:15 - 8:30 P.M. 1580 Arthur St. (MHR Hanger, Thunder Bay Airport)

For directions call on YQI (147.87, -600), or 146.94 simplex after 7:00

There is ample parking in the lot behind the government building.

## NEWS FROM THE D.O.C. .... by MIKE VE3ZG

In response to informal requests from Anateurs and Anateur organizations, and to eliminate various restrictions on Canadian amateur operations, various changes to the General Radio Regulations, Part II have been proposed and have been published in the Canada Gazette for comment. The proposed changes include:

- 1) Elimination of Certificate endorsements which allow extra operating privileges, or allow special types of emissions. Under the revised regulations, an Anateur Certificate will permit a newly licenced Anateur phone privileges on 160 and 10 meters immediately. For Advanced Anateurs, permission to use packet radio in the 14.100 - 14.110 MHz section, or to get special permission for certain types of television transmissions, will not be required.
- 2) Elimination of restrictions on the types of emissions that Anateurs may use within the radio frequency bands allocated to Anateur Radio Service. In its place, the regulations will specify a maximum bandwidth, regardless of the emission type. No more requiring special permission to experiment with a new type of emission, the point being, experimentation is what the service is supposed to represent.
- 3) Amends the regulation to permit foreign Anateurs to operate their stations while temporarily in Canada with similar privileges that they have at home. For instance, if a foreign Anateur has certain voice privileges in his home country, he/she would be able to enjoy the same privileges in Canada while visiting.
- 4) Update the Table of Frequency allocations to include all frequency bands permitted for use by Anateurs.
- 5) Requires Anateurs to ensure that interference is not caused to the primary service in those bands where the Anateur Service is a secondary service and no protection may be claimed by Anateurs from interference caused by the primary service in those bands. The bands involved are between 403 Mhz and 248 Mhz.
- 6) Revoke some of the restrictions on amateur station identification. Certain types of emissions presently are required to identify in a non-conforming method, the amendment will eliminate this requirement.
- 7) Revokes the special conditions on amateur installations on board aircraft and ships. This WILL NOT mean you may take and operate your 2 meter hand-held on board a commercial flight, just that restrictions have been amended on the permanent installation of an Anateur station on board an aircraft.
- 8) All the schedules in radio Regulations Part II are deleted and are replaced by one Schedule which outlines the frequency bands, emissions permitted by the three Certificate categories, and the maximum bandwidth permitted in each band.

These are the highlights of the proposed changes. These are not fact yet but it is not likely that there will be changes.

These changes are completely separate and distinct from plans to amend the structure of the Anateur Service in Canada, by introduction of new classes of Certificates. That process is still in the works and will be a completely separate piece of legislation.

If you wish to see what the new Regulations will actually look like, get in touch with your local D.O.C. office. 73's Mike VE3ZG

## PREZ SAYS

Hello to everyone, and it looks like spring is finally here, or is it? Snow in April? Why Not! What is new in Amateur Radio? A few interesting items, we have one more new ham TIM MONTREY...VE3YTV, and many of the students have only one portion of the exam to pass. I am confident that by the next meeting, and in the May issue of HI Q, we will see at least four new call signs. I would like to take this opportunity to thank those individuals who dedicated their time to make the course a success. Thanks goes out to Bill VE3LMV, John VE3HTM, Dave VE3AVS, Bill VE3XJ, Bill VE3EFC, Mike VE3ZG, Frank VE3OTZ, Norm VE3XRC, Ed VE3SNW, Glen VE3JAU, and Gwen VE3TRE. I hope I did not leave anyone out. The efforts of all are sincerely appreciated.

The next item of interest is the demolition of the E.M.O. building. We are the only occupants of the building now and the city will be tearing the building down by early summer. The City can find us a meeting place without too much trouble, but finding us a permanent home is a bit more difficult. The one building that does look very promising is the new OLDER ADULTS BUILDING going up near Grandview Mall on River St. The response has been favorable and the building is still in the planning stages. In the interim the club's equipment could be put in storage or set up at an alternate location without a tower or towers. The city and both senior levels of government are funding a portion of this new building for the seniors. More word on what is going to happen as we find out. Another item of interest is our grant application for funding to upgrade our repeater antenna and duplexers on Mount Baldy. We will have a reply by April 18th, so we will let you know at the next meeting and the next issue of HI-Q.

The club has a new letterhead thanks to Gabe VE3ILX. We are presently getting price quotes on printing with two colours. We should have a sample finished copy for the next meeting. If the price of the printing is over \$100, we will vote on it as soon as possible. We only need enough copies run off to last for one year of correspondence. The new letterhead better exemplifies the Lakehead Amateur Radio Club and gives a professional image of our organization. Thanks goes out to Gabe and his IBM computer for a job well done.

One last item is that the City of Thunder Bay has appointed the New Emergency Measures Co-ordinator for the City and surrounding districts. The new Co-ordinator is Mr. John Copeland, who is a former RCMP officer. I have spoken with John as to what the L.A.R.C. can do and what we have done in the past. John has been very receptive to the ideas I have pointed out to him and some of the goals the L.A.R.C. is pursuing. John has assured me that he will help us in any way he can. We can look forward to a very qualified individual taking on the task of emergency planning for the district, relying on us to provide communications when needed. 73's and CUL, James-VE3JSC

# MONEY MATTERS ..... Gabe VE3ILX LARC Treasurer Receipts and Expenditures 88/06/30 to 89/03/29

Receipts	1st Quarter	2nd Quarter	3rd Quarter	YTD
Memberships	315.00	1,205.00	57.50	1577.50
Interest	17.01	28.25	50.61	95.87
Donations	595.00	61.87	8.00	656.87
Other	1170.53	80.00	114.00	1364.53
TOTAL	2097.54	1,375.12	222.11	3694.77
Expenses				
Admin	665.00	108.00	161.98	936.74
HI-Q	64.00	189.22	164.83	418.13
Phone	140.00	151.69	73.42	365.96
YQT	128.06	94.39		222.45
FW		45.00	50.00	95.00
Special	695.00	50.00		745.00
Events	126.62			126.62
TOTAL	1820.53	639.14	450.23	2909.90

## Current

Balance	2508.45	3244.43	3016.31	3016.31
Saving Account.....				1776.36
Chequing Account.....				887.18
Charity Account.....				367.15
Petty Cash.....				50.00
Balance.....				3000.69
Contact Gabe VE3ILX if you require details or explanation.				
HEY BUDDY, WANNA BUY A BRIDGE?				

## PHL'S DICTIONARY

**BARKHAUSEN EFFECT:** a succession of abrupt changes which occur when the magnetizing force acting on a piece of magnetic material is varied.

**HIGH END:** refers generally to the hot (RF OF DC) end of a component or circuit; the end opposite the grounded or bypassed end (see cold end in last issue).

**FARADAY ROTATION:** rotation of the plane of polarization of an electromagnetic wave when travelling through a magnetic field. In space communications this effect occurs when signals traverse the ionosphere.

**OVERTONE CRYSTAL:** a quartz crystal cut so that it will operate at a harmonic of its fundamental frequency, or at two frequencies simultaneously, as in a synthesizer.

**OVSHINSKY EFFECT:** The characteristics of a special thin field solid state switch that has identical response to both positive and negative polarities so that current can be made to have the same magnitude in both directions.

**DEHROCHRONOLOGY:** Ask me about this one on IBR or YQT and I'll fill you in!

73's de VE3PHL

LARC

# WHAT'S NEWS

## Packet proposed for shuttle



WAYNE WILSON WB8TSO OF HEATH COMPANY (in jacket) presents Gil Carmen, president of the Johnson Space Center Amateur Radio Club, with the HK-21 Pocket Packet TNC, as club members look on.

Heath Company recently donated three *HK-21* pocket packet TNC's (Terminal Node Controller) to the NASA Johnson Space Center Amateur Radio Club in Houston. As part of the Shuttle Amateur Radio *EX*periment (SAREX), it is proposed that an *HK-21* be used on a March 1990 shuttle flight.

Packet radio allows digitized information—voice, images, and

data—to be transmitted over radio frequencies. In this experiment, amateur radio band frequencies will be used to transmit packetized data to and from the shuttle.

If the project is approved, one of the packet radios will be specially adapted for space travel. NASA will mount it into a protective SAREX casing unit and modifications will be made for use in zero gravity.